

METHOD FOR FORMING A SELF-ALIGNED CONTACT WITH A SILICIDE OR DAMASCENE CONDUCTOR AND THE STRUCTURE FORMED THEREBY

Abstract

A method of forming a device including a conductor and a contact over a semiconductor substrate starts by depositing first dielectric and first hard mask layers on the substrate. Form a conductor slot through the hard mask and down into or through the first dielectric layer. Form a recessed conductor in the slot. Widen the slot in the hard mask to form a wide slot. Form a cap in the wide slot covering the conductor and overhanging exposed portions of the first dielectric layer. Deposit a second dielectric layer and a hard mask. Etch an initial contact hole through the second hard mask down to the top surface of the second dielectric layer. Etch a deep contact hole through the second dielectric layer, the first hard mask and the first dielectric layer down to the substrate with an etchant selective to the capping layer. Fill the deep contact hole and the contact hole with contact metallization.